limiting and how to optimize the plan. Without this approach, there was an increase risk of severe, even fatal esophagus toxicity for the patient.

EP-1651

The effect of the introduction of VMAT on dose to OARs for prostate and seminal vesicle patients

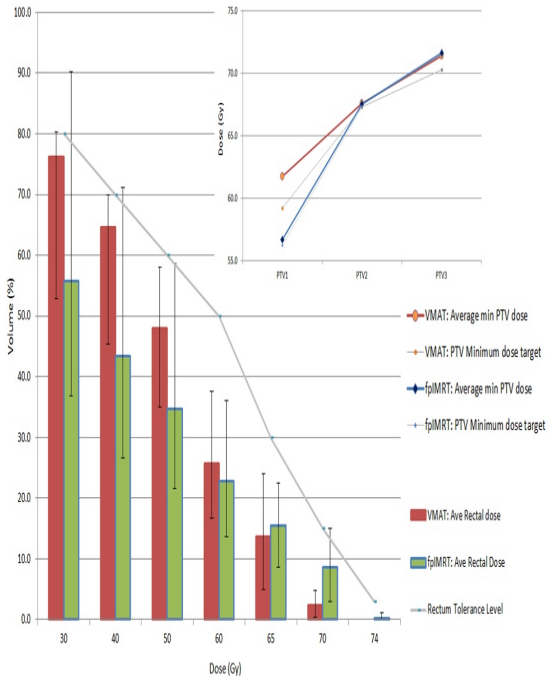
A. Pitt[1], K. Robertson[1], R. Gill[1], E. Gray[1]
[1]*Musgrove Park Hospital, The Beacon Centre, Taunton, United Kingdom*

Purpose/Objective: In England in 2012/2013, there was a strong Government drive to increase the availability of IMRT/VMAT treatment for appropriate patient groups. Up to September 2013, prostate and seminal vesicle patients (PSV) at this centre were treated with a 3 field forward planned IMRT technique (fpIMRT) using 10MV photons (with target and OAR doses based on the CHHiP trial using a 3 dose level target PTV1, 2 and 3). This was replaced with a 6MV single arc VMAT technique. In both cases, treatment delivery was with Elekta Synergy accelerators fitted with MLCi (1cm leaf width). This investigation looked at the organ at risk (OAR) doses achieved using both techniques. In introducing this new technique, the minimum target dose to PTV1 (PSV + a uniform margin of 1cm) was also increased in line with another UK department who provided VMAT implementation mentoring. This audit assessed the effect of the treatment technique change along with PTV1 dose escalation and identified whether the acute side effects seen during treatment were affected by this technique and dose change.

Materials and Methods: Philips Pinnacle V9.8 is routinely used to contour and plan all PSV patients. DVH analysis was performed to extract OAR doses and PTV doses for 39 patients who were planned using the fpIMRT technique and 49 patients planned using the VMAT technique. Microsoft Excel 2010 was used to collate and analyse the data. The RTOG scoring system was used during treatment to assess 6 common acute side effects for this group of patients.

Results: All dose constraints were met consistently met using a forward planned technique. However the introduction of VMAT planning allowed an escalation to the achievable PTV1 minimum dose within those same dose constraints. The RTOG scores during treatment for six common acute side effects for this group of patients showed that whilst the difference in technique has not decreased the side effects seen by a statistically significant amount, the average score for each side effect were lower for the patients treated with VMAT, even with the higher dose to PTV1.

The low dose bath effect to the rectum of the VMAT planning technique is evident in the analysis of the dose constraints, with the average V30Gy at 76.2% and the average V40Gy at 64.6%, compared with V30Gy: 55.8%, V40Gy: 43.4% for fpIMRT. These dose constraints were not classified as mandatory in the CHHiP clinical trial or in this department's clinical protocol. The mandatory high dose (65Gy, 70Gy, 74Gy) constraints demonstrate a reduction in the amount of rectum within these dose regions of the prostate treatment with the implementation of VMAT.



Conclusions: Implementation of a VMAT technique for the treatment of PSV has resulted in an increase of dose uniformity of the PTVs by increasing the achievable minimum PTV1 dose and reducing the high dose level received by the rectum. Further work will investigate whether there is scope within those same OAR constraints to escalate PTV doses further if clinically rquired.

EP-1652

Feasibility, tolerance and toxicity of adjuvant vaginal brachytherapy in endometrial cancer

A. Grillo[1], M. Gueci[1], F. Sciumè[1], G. Evangelista[1], A. Lo Casto[2]
[1]*Ospedale Civico Palermo, Radiotherapy, Palermo, Italy*
[2]*Policlinico Universitario P. Giaccone, Radiology, Palermo, Italy*

Purpose/Objective: tolerance and toxicity of adiuvant exclusive vaginal High Dose Rate Brachytherapy (HDR_BT) in patients with endometrial cancer.

Materials and Methods: A total of 30 patients (pts), median age 70 years old, were treated by postoperative HDR vaginal cuff Brachytherapy. Patients underwent hysterecomy for endometrial cancer. Staging and grading according FIGO were 8-IA, 18 IB, 3 II, 1-IIIA; 2-G1, 18-G2, 10-G3. HDR-BRT was performed using vaginal cylindrical applicators applied to the patients who received five fractions of 600cGy to a total dose of 3000 cGy prescribed to the 0.5 from the applicator's surface. Computed Tomography (CT) simulation was performed with CT slices thickness of 5 mm. Proximal 3-3.5 cm of the vagina were treated. Bowels are more than bladder very radiosensitive and so to prevent bowels toxicity, all patients were asked to consume from 250 ml to 400 ml of water 30 minutes before CT scan and before treatment and empty rectum by means a selfie applied rectal enema. Acute and late Gastrointestinal (GI) and Genitourinary (GU) toxicities were investigate according RTOG Toxicity scale.